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ABSTRACT

Topic changes in conversation are governed by principles of discourse organization. These principles are highly specified and are identical to those responsible for the organization of memory structures. Of the three levels of organization: (1) universally controlled organization; (2) culturally controlled organization; and (3) idiosyncratic behavior--only the first is discussed. Memory structures are stored hierarchically and provide relational information about concepts and events. They guide discourse progression in one of two ways: either hierarchically, by focusing on the perspectives of a topic, or syntagmatically, by focusing on semantically parallel topics. For a given topic there are three types of perspectives, none of which is mutually exclusive: (1) object oriented, (2) theme oriented, and (3) emotion oriented. As long as the conversation proceeds along any of these perspectives, it focuses on the same topic. Because topics proceed along syntagmatically parallel paths, a change in topic is accomplished by choosing a syntagmatically parallel topics. Conversational data from Japanese, Kipsigis, and Swahili illustrate how memory structures operate to control conversation. Information about the background of the conversational participants and their language and culture is also needed to predict conversational direction. (JK)

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Proceedings of the Eighth Annual Meeting of the Western Conference on Linguistics (October 20-21, 1978)

WHERE DO WE GO FROM HERE?

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ED202200

This paper deals with topic changes in conversation. My claim is that topic changes are governed by principles of discourse organization that can be specified with a fair degree of accuracy, and that the organizing principles of discourse are similar, or identical, to the organizing principles of memory. I find three levels of organization. The first involves what I term 'universally controlled' organizations. To the extent that memory is structured similarly for all humans, conversations are controlled by these universal organizing principles. The second level is 'culturally controlled' in that differences among divergent language or dialect groups will be reflected in how topics change in conversations. The third level involves idiosyncratic behavior. This level of organization creates differences within a single culture based on an individual's overall personality, his present state of mind, etc. Although I distinguish these three levels of organization, I will discuss here only the level of universally controlled memory constraints. As I will point out in my final statements, the distinction among these levels is more for expository purposes than anything else. Drawing a line between one level and another would be, at best, difficult and misleading.

I begin with a discussion of memory structures, but restrict my remarks to those salient features which have relevance for the ensuing discussion. Elaborations may be found in Norman et al (1975), Kintsch (1974), and Solso (1973).

One type of knowledge stored in memory concerns relational information about concepts and events.1 This includes hierarchies of classes and subsets, properties that characterize classes of things, and properties of events. These relationships are represented in an *active structural network*, with nodes standing for concepts or events. Concepts represented by nodes are connected to other nodes by labeled, directed relations. Events are represented in a similar way except that actions require accompanying optional and obligatory case arguments.

A rather straightforward, though complicated introduction to memory structures is presented in Norman (1973). Norman considers what is necessary in order to answer a question such as (1).

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(1) Where is the Empire State Building?

He states (1973:157):

> To answer a question intelligently requires a large body of specific knowledge about the area being questioned, including general knowledge about the world and its causal and physical laws, and also an understanding of the knowledge and behavior of other people.

Some of the knowledge required to answer question (1) is presented in (2), a diagram taken directly from Norman (1973:157).

(2) On following page.

All of this is necessary, says Norman (1973:156), since

> To answer this question properly requires that the respondent understand the requirements of the person who asked the question. If I were asked this question in Russia, I might well respond "In the United States." If I were asked by an adult in Europe, I would probably respond "In New York City." In the United States--especially in New York City, I would respond "On 34th Street." Finally, if asked in the New York subway system, I would not answer with a location, but rather with instructions on how to get there.

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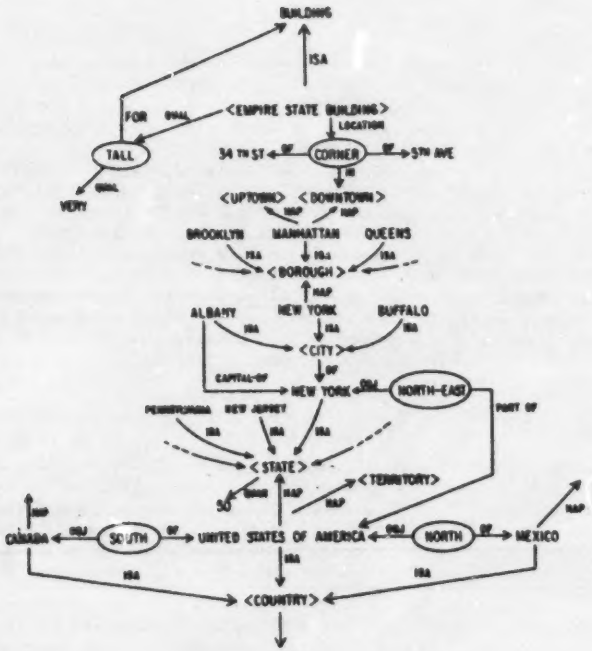

The work of Schank (1977) is a direct development of this type of approach to language and memory. Schank has expanded the level of concern beyond just answers to questions and has dealt with "what can follow what" in a conversation. His starting point (1977:422) is that

> In a conversation it is not appropriate to respond to sentences with anything that comes to mind. There are specific rules that govern the selection of responses.

These specific rules, as Schank sees them, do not select one and only one response in a given situation. Rather, these rules "govern but do not severely restrict appropriate responses."

Schank's proposal is meant to be an initial statement defining the "problems" involved in attempting to model conversation for a computer. As such, Schank is concerned with determining what an appropriate response to a given input should be. However, this view of conversation as a question-answer pair, or as a remark-reply pair, is overly simplified. Conversation is organized in larger chunks than this. Analogously, Norman (1973:145) has suggested that memory is also organized in larger chunks of material.

> The basic unit in memory space is the scenario: an action that consists of events, actors, locations, and objects ... scenarios also imply causal factors and results.

The importance of this observation is that a successful model of conversational analysis should not be restricted to "question-answer" or "remark-reply" pairs. Even

strictly linguistic investigations have demonstrated the basic inadequacy of this approach. As representative evidence, I mention Ryave (1977), who has investigated the clustering of stories in conversation; Pomerantz (1977), who has investigated "action-chain organization" in conversation; and Hinds (1978a), who has investigated the role of repetition and overlapping speech in conversations. All of these studies, and many of the references cited in these studies, accrue evidence against the overly simplistic nature of a model designed to account only only for "input-response" pairs.

A brief example from a conversation between two male speakers of Swahili will illustrate this. These data are taken from Creider (1977). Responses to questions are not always confined to a single utterance. The response may take several elaborations before the answer is completed, and the question itself may require several stages.

(3) A-1. *Lakini mara huona mawe mawe kubwa kule,*
But now you see the big rocks over there,

B-2. *Ah-ha.*
Uh-huh.

A-3. *Yote inatiririka maji?*
Do they all have a bit of water?

B-4. *Hapana.*
No.

A-5. *Ee.*
Yes.

B-6. *Hatuwezi kusema yote iko na maji.*
We can't say that they all have water.

A-7. *Eh-heh.*
Eh-heh.

B-8. *Walakini iko ingine ambayo iko naye.*
However there are some which do.

A-9. *Eh-heh.*
Eh-heh.

In terms of informational content, this sequence could be reduced to (4).

(4) A. Do those big rocks over there all have water?
B. No.

But this rendering would completely miss the dynamics of social interaction required by participants in a conversation, as well as to completely miss very obvious clues as to how information may be emphasized and highlighted.

With the recognition that the basic unit in memory space is the scenario, and the recognition that concepts are organized in memory in an essentially hierarchical fashion, a basic constraint on topic progression may be formulated.

(5) Conversations may progress in one of two directions: They may go "deeper" into a hierarchy by discussing various "perspectives" on a topic; or they progress syntagmatically to semantically parallel topics.

There are three types of perspectives for a given topic. These are presented in (6).

(6) On following page.

A conversation is about the same topic if the development proceeds along any of these

(6) OBJECT ORIENTED
a. participants
b. props (including locations)
c. causes
d. results

EMOTION ORIENTED
a. positive/negative
b. agree/disagree
c. like/dislike

THEME ORIENTED
a. generalization
b. instantiation
c. meta- (why someone is in possession of knowledge, etc)

lines. These major developments are not mutually exclusive, however, so that, for instance, a particular perspective might be both object oriented and theme oriented. This is typically the case when a topic is instantiated using a particular participant to illustrate the story.

One additional point must be made. In Hinds (1978b) it is demonstrated that every unit of speech which maintains a unified orientation in terms of topic or perspective has a rigid structure. This structure contains both paratactic and hypotactic relationships. The possible paratactic relationships are presented in (7). With the exception of the optional feedback component, this structure is similar to the data which are of concern to Schank (1977).

(7) Remark-Reply-(Feedback) [RM-RP-(FB)]
Question-Answer-(Feedback) [Q-A-(FB)]

In addition to these basic relationships, embeddings, or even multiple embeddings, are possible [see Goffman (1976), Hinds (1976), Merritt (1976)]. Another complication of these basic structures is that an indeterminate number of hypotactic relationships may occur. These hypotactic relationships elaborate or explain one of the members of the paratactic relationship if they follow it, or they set the stage for one of the members of the paratactic relationship if they precede it.

If we examine the skeleton structure for (3) presented in (4), we see that both members of the basic RM-RP structure are elaborated in some way. (3A-1) sets the stage for the question asked in (3A-3). Both (3B-6) and (3B-8) elaborate the basic answer given in (3B-4).

I will now adduce some additional data to illustrate how topic perspectives may be developed. The following conversation between two Japanese males has a wealth of information on the social dynamics of attempts at conversational dominance. However, I will restrict my remarks to perspective development.

(8) A-1. *tune saN, syuukaNsi miru to, are da ne, haisyakku no zikeN ga sootoo rippa ni sarete ru nee.*
Say, Tsune, if you look at the weekly magazine you'll see a lot about that stuff, that hijacking.

B-2. *ya.*
Yeah.

B-3. *kinoo mo atta ze, kinoo mo.*
Hey, there was one yesterday too, yesterday!

A-4. *aa, korya amerika de?*
Oh, was this one in America?

B-5. *uN.*
Yeah.

A-6. *aa, zya, NN, amerika de haizyakku te no wa, are da ne, nitizyoosahaNzi na N da ne,*
Well, um, in the States, hijacking is becoming, what should I say, a common everyday occurrence.

B-7. *soo da ne.*
Yeah, you're right.

B-8. *omosiroi zo, kinoo no wa.*
It was interesting though, that one yesterday.

A-9. *sore siNbuN ni dete ta?*
Was that in the paper?

B-10. *ya.*
Right.

B-11. *takkusu de, atama ni kite ne, soide haizyakku yattyatta N da, yoNhyaku doru no takkusu.*
Yeah, the hijacker got pissed off at some tax, so he hijacked a plane, a $400 tax.

A-12. *hoNtoo?*
Really?

B-13. *uN.*
Yeah.

B-14. *atama ni kityattq wake da.*
He really got pissed off.

There are three natural groupings in this conversation. The first, (A-1) - (B-2), introduces the topic of hijacking. The second, (B-3) - (B-7), constitutes an instantiation of the topic. The embedded Q-A sequence in (A-4) and (B-5) concerns the perspective of location, a prop. (A-6) is of interest because it is not only a reply to (B-3), it is an attempt to return the conversation to the more general topic of hijacking, utilizing the perspective of America brought up in (A-4). The third grouping, (B-8) - (B-14), once again instantiates the topic of hijacking. (B-8) sets the stage for (B-11), the comment B has been trying to make since the topic of hijacking was initiated. (B-11) gives the perspective of a cause for the hijacking as well as the perspective of a participant. (B-14) reiterates the reason for the hijacking. The structure of each segment is presented in (9), the numbers referring to sentence numbers while the type of perspective is listed below the appropriate paratactic relationship.

(9)

A.	1	2											
	[RM	-	RP]										
B.	3			4	5		6						
	[RM			(Q	-	A)	RP				FB]		
	instantiation			location			generalization						
C.	8			9	10		11			12	13		14
	[(RM			(Q	-	A)	RM)			(Q	-	A)	RM]
	set the stage			meta-			participant/cause						explanation/ repetition

Conversations may also proceed, not by developing perspectives of a topic, but by changing from one topic to another. This type of progression involves a number of major problems in analysis. Perhaps the greatest problem concerns the definition of topic. Informally, the topic may be defined as what the participants are talking about at a given time. Even this informal definition is not without problems, since quite often partici-

pants appear to be speaking about several things at once, or they talk about one thing in relation to something else.

Schank (1977:422) has proposed that topic be defined as:

> a topic is any object, person, location, action, state or time that is mentioned in the sentence to be responded to.

There are several problems with this definition, the most important being that a topic need not be overtly mentioned in a discourse in order for the participants in that discourse to interact successfully. By successfully, I mean that participants understand the topic to the extent that they are able to treat this unmentioned topic as if it had been mentioned. This may be illustrated by examining the way the grammatical phenomenon of ellipsis interacts with the establishment of a discourse topic. In Japanese, there is a standard conversational progression in which a character is introduced into a conversation by being marked with the postpositional particle *ga*, the usual subject marker. If that character is to be the "topic" of the succeeding conversation, he/she is marked by the postpositional particle *wa*, the usual topic marker. Finally, after the character has been overtly signalled to be the topic in this way, ellipsis of that character may occur. The following example, discussed first in Hinds (1978c), is taken from an unplanned oral rendition of the folktale Momotaro "The Peach Boy".

(10). A. *sibaraku mata aruite iku to koNdo wa kizi ga toNde kimasita.*
And so they walked a while, and next a pheasant came flying down to them.

kizi wa saNniN--eeto, hitori to nihiki ga aruite ru no o mite, naN daroo to omotta.
The pheasant looked at the three people, er, ah, the one person and the two animals walking along and thought, What is this?

C. *[Kizi] momotaroo--ha, ha, minasaN de doko ni iku N desu ka to kikimasita.*
[The pheasant] asked, "Momotaroo, oh, ha, ha, um, where are you all going?"

In this example, *kizi* 'the pheasant' is marked by *ga* as it is introduced into the story. When it is marked by *wa* as it is established as the conversational topic. Finally, it may be ellipted, as it is in (10C). Compare this example with the following excerpt taken from the TV drama *Shinjagaimo* "The New Irish Potatoes" [KIKU-TV Honolulu, Channel 13, 5/24/78]. Yuji, the younger son in the family, is engaged to marry Yoko, who is pregnant by Yuji's recently deceased older brother. Yoko has been informally adopted by Yuji's family, and she is therefore living with them. Yuji returns home from school and joins his parents around the *kotatsu*. His first utterance to his parents is:

(11) *moo kaette kita?*
Has [she] come home already?

The person he is talking about is clearly Yoko. This interpretation is, of course, assisted by Yuji's nonverbal behavior, since he looks upstairs when he asks this question. Upstairs is where Yoko stays and is presumably where she would be if she were home and not in sight.

What this example demonstrates is that the topic does not have to be overtly mentioned if there are other obvious clues in the verbal and nonverbal context. Yuji has Yoko on his mind and he has assumed, correctly in this instance, that his parents know he is thinking of her. This phenomenon has been discussed very insightfully under the heading of activated and unactivated information in Chafe (1976) and Gundel (1977).

As a working definition of topic, I propose (12), a modification of Chafe (1976:50).

(12) A discourse topic sets a spatial, temporal, or individual framework within which related statements are made.

Assuming that we can recognize the existence of two distinct, temporally connected topics, the problem is one of determining how the link between the two is made.

My claim is that topics will proceed along syntagmatically parallel paths. Branching out from one node to another does not necessarily take place at the highest possible level. Thus, examine the following data from Kipsigis, a Southern Nilotic language. These data are also taken from Creider (1977).

(13) A-1. ámu nêɛ oɪ̂ɪn pá kooreeŋuuŋ ány?
How are things over by your home area?

B-2. cáme kêɛ oɪ̂ɪn pâ kooreenyuun ɪnê· ák ánéɛ áaménýé oɪ̂ɪn pá sâat·
It's fine over by my home area. And me, I live over there by Sot.

A-3. ɪmeŋúunêe sâat·
You live in Sot.

B-4. áménye sâat kɔ́mɔ́sɪ́ éep iɪn lɔ́ŋkɪ́sá·
I live in Sot this side of Longisa.

A-5. lɔ́ŋkɪ́sá eeneet·
The place is Longisa.

B-6. kó ɪŋkeemɪ́ɪ lɔ́ŋkɪ́sá kɔrá, kéepêentɪ́ɪ máeeɪ̂ɪsyék múut kéɛpá ole kɪ́le kɪpreerêes·
And when one is at Longisa one still has to go five miles towards a place called Kipreres.

A-7. kɪpreerêes·
Kipreres.

B-8. kɪpreerêes·
Kipreres.

A-9. sô kɪ̂ɪsoománêe···
So you were studying at ...

B-10. interrupts

A-11. kɪ́ɪ̂ɪkas sukúuɪ̂ɪnaan kɪ́pára kɪpreerêes· kɪ̂ɪsoománêe sôe?
You've heard of the school called Kipreres. You were studying at Kipreres weren't you?

B-12. kyásoománêe kɪpreerêes·
I was studying at Kipreres.

A-13. âaá·
I see.

B-14. sukúuɪ̂ɪnyuun eemáanâan·
That place is my school.

A-15. starts to speak but interrupted

B-16. kɔrɔ́ok ne táay né kyásoománe kyásoománêe sukúuɪ̂ɪt ne kɪ́le mêeŋkɪ́t·
The first place I studied at was a school called Menkit.

A-17. mêeŋkɪ́t·
Menkit.

B-18. mêeŋkɪ́t kó mɪ̂ɪ amaalɔ ɪnê·
Menkit is very near to the Amalo (a large river).

A-19. laughs

B-20. yâant···
Now ...

A-21. kʃɪkáakas aynâandan lakʃnɪ kótóom mâaŋken ʃnê···
I've heard of that river but I don't know ...

B-22. ee·
Yes.

A-23. akópá náatan mɪɪsʃŋ ʃnê·
very much about it.

B-24. kʃɪwâateet aap kɪpsɪkɪɪsyék ák máasáêek·
It's the border between the Kipsigis and the Maasai.

A-25. ák máasáêek·
And the Maasai.

B-26. ee kʃɪwâateet aap kɪpsɪkɪɪsyék ák máasáêek· ɪŋkûunaan sʃ aamʃɪ máeelʃt akêeŋkɛ,
Yes, it's the border between the Kipsigis and the Maasai. Now I live one mile ...

A-27. mm-hm·
mm-hm.

B-28. máeelɪlsyék áêeŋ keeŋeeteę kʃɪwâato ák ák kâa·
It's two miles from the border to home.

A-29. ák kâa, kót kɔlt máasây·
To home and to Maasai land.

B-30. kɔlt máasây·
To Maasai land.

A-31. éucó·
Now.

B-32. kʃɪa ɪŋkûunáan kéepáre kée ák máasáêecɔɔn, plcáan·
We often fight with the Maasai, those people.

A-33. o, ee·
Oh, yes.

B-34. ɪŋkûunáan múrénʃk aap kooreenyoo alák···
Now some of the young men of my area ...

A-35. laughs

B-36. kó ʃleeté súuméek kɔryákɪ·
are plaiting their hair now.

A-37. ʃleeté súuméek kɔryákɪ·
They are plaiting their hair now.

The first thing to be noted is the tremendous amount of repetition. Many languages make use of this type of repetition for various purposes [see Hinds (1978a), Grimes (1972)].2 Here, the function of repetition appears to be to establish a conversational topic. In (A-1) - (A-3), B's homeplace of Sot is established as the topic of conversation. It is common to pinpoint a location with respect to other locations [see again (2) above]. (B-4) places Sot this side of Longisa, and the repetition of Longisa in (A-5) establishes it as a 'subtopic', making it legitimate to say more about its location, rather than the location of Sot. In (B-6) - (B-8), Kipreres is established as the new subtopic about which something could be said. It is my guess, based on (A-9) - (A-11), that A already

knows that B had studied at Kipreres. They have now exhausted the geographical locations for the time being, and are faced with what can possibly be said about Kipreres, the current topic of conversation. One possible comment involves the potential activities B has performed in that place. This line of speech continues until (B-16), at which point B moves in a parallel fashion and introduces another place he had studied. Through repetition, this is established as the new subtopic, and in (B-18) its location is given with respect to the Amalo. The Amalo is the major concern of conversation until (B-24), at which point the Amalo is geographically located between the Kipsigis and the Maasai. Ironically enough, as the Amalo flows between the two tribes, the conversation balances the Kipsigis and the Maasai, until (B-32) makes a statement about the relationship between the Kipsigis and the Maasai. This relationship is continued until (A-37), when we leave the conversation.

Using these observations about Kipsigis conversational flow as a base, we can return to a continuation of the Japanese conversation presented in (8). The leap from an instance of hijacking to the fact that one of the participants understands the term "Gorilla dance" may seem long, but by following the actual thread of conversation, the path is quite transparent.

(14) M-15. *tyotto ne, t- anoo, takkusu ga takai moN nee.*
Yeah, well, uh, taxes are really high, aren't they.

M-16. *ya, ima ne, wareware ga hanasite ru koto hizyoo ni ne, eego ga zuibuN haitte ru kedo sa,*
Yeah, but you know, right now, the things we're talking about, we're really using a lot of English words, but ...

M-17. *nihoNgo tte iu no wa, ima mo zuibuN eego wa toriirerarete ru ne.*
Japanese, you know, these days has taken lots of words from English.

T-18. *ooi ne.*
Yeah, there are.

M-19. *naze ka tte iu to ne, nihoN kara kuru syuukaNsi miru to ne, moo, iroNna, sonoo, naNte iu no ka na, eego wa kaite ru moN da kara.*
The reason I say that is that if you look at the magazines that come from Japan, wow, there's, what should I say, there's all kinds of English written in them.

M-20. *musiro kotti ni wa wakaranai N da yo ne.*
Even here we don't understand those things.

M-21. *poppukooN daNsu naNte sitte ru kai?*
Do you understand the expression "Popcorn Dance"?

T-22. *saa, siranai nee.*
Hm, no, I don't.

M-23. *poppukooN daNsu tte no wa sa,*
Well, "Popcorn Dance" is, uh,

T-24. *gorira daNsu nara sitte ru kedo.*
I do understand "Gorilla Dance" though.

The turning point is (8M-16), at which place M makes a metalinguistic comment about their conversation, based on the fact that two of the most prominent words they are using, *haizyakku* and *takkusu*, are loanwords from English. This allows a generalization in (8M-17), and then (8M-21) and (8T-24) introduce instantiations of this generalization.

In this paper I have attempted to give an overview of how conversations progress. I have claimed that there are two types of progression in conversations: One develops a

particular topic by discussing the various perspectives of that topic; the other changes topics by picking a syntagmatically parallel topic. I have further suggested that within a unit of conversation concerned with a single topic or subtopic, there will be one paratactic structure, and an optional number of hypotactic elaborations. Data have been presented which suggest that there are "universal" properties of memory which control conversational flows. Conversational data have been presented from three unrelated languages to demonstrate how these constraints operate.

Neglected in this paper are accounts of cultural and individual differences which control conversational flows, although certain aspects of these constraints are suggested in the data presented here. Clearly the overlay structure of the Kipsigis conversation is a language specific phenomenon, although similar phenomena may be found in Japanese and Korean. Other types of language or culturally controlled phenomena can only be hinted at here. As one instance, a comparison of Japanese males with American males in similar stressful situations typically finds the American males making small-talk and jokes. Japanese males, on the other hand, tend more to say very little, and what they do say is task oriented and in extremely polite style.

In terms of individual differences, an example from Japanese may be mentioned. A twenty minute videotaped conversation between two Japanese males had all of the outward signs of a normal discussion. The participants' task was to look at ten photographs of Japanese people in both Japan and Hawaii, and to talk about them. Although the older Japanese male had shown considerable reluctance to being taped initially, he finally agreed, and the conversation appeared to be a natural interchange with both participants contributing on an equal basis. After several screenings of this conversation, however, and after a detailed examination of the information content of each participant's contribution, it became apparent that the reluctant participant contributed little more than affirmations, repetitions, and restatements.3 Although the total wordage of each participant did not differ significantly, the reluctant male contributed only a few comments that provided any new information at all. Interestingly enough, all of these comments were directed at the quality of the photographs rather than being a reaction to the photos. This participant is a professional artist.

Thus, the position I maintain is that conversational directions can be predicted with a fair degree of accuracy. In order to make such predictions, however, we need access to universal properties of memory structures, and to language specific and culturally imposed constraints on organization, as well as access to considerable amounts of information on the backgrounds of conversational participants.

Footnotes

1Greeno (1973:114) suggests a second type of knowledge stored in memory as "algorithmic knowledge" but points out that the distinction between the two types in not rigorous.

2In Japanese as well, repetition may be used to establish a concept as the topic of conversation. This is illustrated in the following segment of conversation taken from an audiotaped recording:

A-1. *yakyuu no sa, anoo, siai de sa, koohuN sityatte, hitori no wakai ne, ozyoosaN ga ne, minisukaato no ozyoosaN ga sa, ...*
At a baseball game, this girl, a girl in a miniskirt, this young girl got excited, and ...

The subsequent conversation then discusses this girl who has been introduced as the topic of conversation through repetition. See Hinds 1978c for details.

3Jeff Robson has written an interesting term paper dealing with this videotaped conversation at the University of Hawaii.

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